



PATENT

THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re : Application of Shan et al.
For : **HIGH PEAK-POWER KILOHERTZ LASER SYSTEM
EMPLOYING SINGLE-STAGE MULTI-PASS AMPLIFICATION**
Serial No. : 10/656,343
Filed : September 5, 2003
Priority Date Claimed :
Group Art Unit :
Examiner :
Our Docket No. : KSU-101US

September 26, 2003

COMMISSIONER FOR PATENTS

Mail Stop DD
Post Office Box 1450
Alexandria, Virginia 22313-1450

**INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. 1.97**

Sir:

The following information is disclosed in accordance with 37 C.F.R. 1.97.

The following patents, which are listed on the enclosed form PTO-1449 and submitted herewith in copy, are considered relevant prior art.

UNITED STATES PATENTS

| <u>Patent No.</u> | <u>Patentee</u> | <u>Date</u> |
|-------------------|-----------------|-------------|
| 6,384,966 | Dymott | 05/07/02 |
| 6,108,357 | Unternahrer | 08/22/00 |
| 5,172,263 | Hale | 12/15/92 |

OTHER DOCUMENTS

Spectra-Physics Mountain View, California HURRICANE Specifications (October 2001).

Positive Light Los Gatos, California Legend Sub-30 fs Ti:sapphire Amplifier (January 2003).

Positive Light, Inc. Los Gatos, California Technical Bulletin "Overcoming Challenges of Sub-30 fs Chirped Pulse Amplification (January 2003).

Spectra-Physics, Mountain View, California FEMTOPOSER COMPACT PRO Specifications (1997).

J. Squier et al, " 100-fs pulse generation and amplification in Ti:Al₂O₃", Optics Letters, 16, 324 (1991).

M. Lenzner et al, "Sub-20-fs, kilohertz-repetition-rate Ti:sapphire amplifier", Optics Letters, 20, 1397(1995).

Fu at al, "High-average-power kilohertz-repetition-rate sub-100fs Ti:sapphire system", Optics Letters, 712(1997).

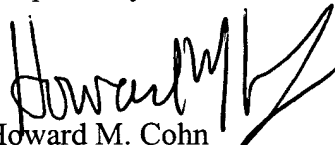
V. Bagnoud and F. Salin, "1.1 Terawatt, kilohertz femtosecond laser", in conference on Lasers and Electro-optics, 1999, Baltimore, IvID.

S. Sartania et al., "Generation of O.I-TW 5-fs optical pulse at a 1-kHz repetition rate", Opt. Lett. 22, 1562(1997): 1 stage amplifier: 1.5 mJ output / 10 mJ pump

Y. Jiang et al., "High-average-power 2-kHz laser for generation of ultrafast x-ray pulses", Opt. Lett. 27,963(2002): 3 stage amplifier, 2kHz: 1 -3uJ output / 1.5W pump; 2- 0.5 mJ output /11 W pump; 3 -14W output / 54W pump

Due consideration and allowance of this application are respectfully solicited.

Respectfully submitted,


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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: **COMMISSIONER FOR PATENTS**, Arlington, Virginia on September 26, 2003.

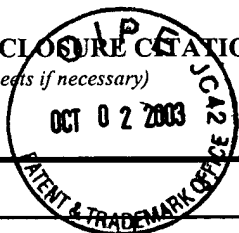
Name of Person mailing : Howard M. Cohn

Signature of Person mailing :

Date of Person signing : September 26, 2003

INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)



| | | |
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| Docket Number (Optional) KSU-101US | | Application Number 10/656,343 |
| Applicant(s) Shan et al. | | |
| Filing Date 9/5/03 | | Group Art Unit |

U.S. PATENT DOCUMENTS

| *EXAMINER INITIAL | REF | DOCUMENT NUMBER | DATE | NAME | CLASS | SUBCLASS | FILING DATE IF APPROPRIATE |
|----------------------|-----|-----------------|----------|-------------|-------|----------|-------------------------------|
| | | 6,384,966 | 05/07/02 | Dymott | | | |
| | | 6,108,357 | 08/22/00 | Unternahrer | | | |
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FOREIGN PATENT DOCUMENTS

| | REF | DOCUMENT NUMBER | DATE | COUNTRY | CLASS | SUBCLASS | Translation | |
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

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|--|---|-----------------------------------------------------------------------------------------|
| | ✓ | Spectra-Physics Mountain View, California HURRICANE Specifications (Oct. 2001) |
| | | Positive Light Los Gatos, California Legend Sub-30 fs Ti:sapphire Amplifier (Jan. 2003) |

? NOT INDEXED

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| EXAMINER | DATE CONSIDERED |
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EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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| ✓ | Positive Light, Inc. Los Gatos, California Technical Bulletin "Overcoming Challenges of Sub-30 fs Chirped Pulse Amplification" (Jan. 2003) |
| ✓ | Spectra-Physics, Mountain View, California FEMTOPOWER COMPACT PRO Specifications (1997) |
| ✓ | J. Squier et al, " 100-fs pulse generation and amplification in Ti:Al2O3", Optics Letters, 16, 324 (1991). |
| ✓ | M. Lenzner et al, "Sub-20-fs, kilohertz-repetition-rate Ti:sapphire amplifier", Optics Letters, 20, 1397(1995) |
| / | Fu et al, "High-average-power kilohertz-repetition-rate sub-100fs Ti:sapphire system", Optics Letters, 712(1997) |
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| ✓ | S. Sartania et al., "Generation of O.I-TW 5-fs optical pulse at a 1-kHz repetition rate", Opt. Lett. 22, 1562(1997): 1 stage amplifier: 1.5 mJ output / 10 mJ pump |
| / | Y. Jiang et al., "High-average-power 2-kHz laser for generation of ultrafast x-ray pulses", Opt. Lett. 27,963(2002): 3 stage amplifier, 2kHz: 1 -3uJ output / 1.5W pump; 2- 0.5 mJ output /11 W pump; 3 -14W output / 54W pump |
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